5/91
Beller's Ground Beetle
Agonum belleri

Range:
Lowland sphagnum bogs of Washington, Oregon, and southwestern British Columbia (Johnson 1979, 1986).

Washington Distribution:
Historically known from Snohomish County and King County. Currently confirmed only in King County (Johnson 1979).

Habitat Requirements:
Beller's ground beetles inhabit eutrophic sphagnum bogs associated with lakes below 1000m (3280') elevation. The bogs have very little surface drainage and tend to be acidic (Johnson 1979, Fitzgerald 1966). Johnson (1979) found Beller's ground beetles inhabiting the life zone immediately adjacent to open water at King's Lake bog. The area was characterized as primarily a free-floating band of Sphagnum spp. with some vascular plants including round-leaf sundew (Drosera rotundifolia), bog cranberry (Vaccinium oxycoccos), and cottongrass (Eriphorum chamissonis). Beller's ground beetles were not found in the surrounding dryer life zones of the bog. The beetles probably scavenge on plant and animal materials (Dawson 1965). In laboratory tests, Johnson (1979) maintained them on invertebrates, while Fitzgerald (1966) observed them eating conifer seeds.

Limiting Factors:
Availability of sphagnum bogs with living, floating sphagnum mat.

Management Recommendations:
The Beller's ground beetle no longer occurs at Chase Lake due to severe habitat alterations from peat mining and housing developments (USFWS 1978). Activities that might alter the condition of sphagnum bogs where Beller's ground beetles are known to occur should be prevented. These activities include peat mining, filling, draining, construction within the bogs, and other perturbations. Changing the natural water level or flow rate within the bogs should also be prevented. Sediment inflow from surrounding land use activities may affect survival of Beller's ground beetle and should be avoided (Johnson 1986).

Ground beetles appear to be more susceptible to the effects of pesticides than other insect groups (Thiele 1977). Insecticides, and herbicides that could damage wetland vegetation, should not be applied in sphagnum bogs. Persons wanting to apply chemicals to adjoining lands should not apply them if stormwater runoff or wind drift will carry the chemicals into the bog. Stormwater runoff should not be diverted into sphagnum bogs. Decisions about chemical applications should be made on a site specific basis and should consider type of chemical used, season, topography and other relevant features.

Exotic fish could potentially prey upon beetle larvae and should not be introduced into wetlands where Beller's ground beetles occur.

References:

Dawson, N. 1965. A comparative study of the ecology of eight species of fenland Carabidae (Coleoptera). J. Animal Ecol. 34:299-314.

Fitzgerald, B. J. 1966. The microenvironment in a Pacific Northwest bog and its implications for establishment of conifer seedlings. Unpublished M. S. Thesis, University of Washington, Seattle, WA.

Johnson, P.J. 1979. A report on a survey for Beller's ground beetle on the North Fork of the Snoqualmie River, King County, WA. Unpublished report for the U.S. Army Corps of Engineers, Seattle District, #DACW67-79-M-1189.

____ 1986. Letter on file with the Washington Department of Wildlife, Nongame Program, Olympia, WA.

USDI Fish and Wildlife Service. 1978. Proposed endangered or threatened status and critical habitat for ten beetles. USDI Fish and Wildlife Service, Portland, OR.

Thiele, H.U. 1977. Carabid beetles in their environments. Springer-Verlag. New York, NY.

Key Points:

Habitat Requirements:

- Inhabit sphagnum bogs associated with lakes below 91 m (300') elevation.
- Inhabit life zone immediately adjacent to open water.

Management Recommendations:

- Prevent activities that may alter the condition of sphagnum bogs (e.g., peat mining, filling, draining, construction).
- Maintain the natural water level or flow rate within sphagnum bogs.
- Prevent sediment inflow from adjacent uplands.
- Avoid applying insecticides or herbicides in or near sphagnum bogs.
- Avoid diverting stormwater runoff into sphagnum bogs.
- Do not introduce exotic fish into lakes or wetlands associated with sphagnum bogs.